INTERNATIONAL TECHNOLOGY CORPORATION

CERTIFICATE OF ANALYSIS

Bechtel Hanford, Inc.
P.O. Box 1970345 Hills
Richland, WA 99352

August 30, 1994

Attention: Joan Kessner

SAF Number	:	B94-008
Date SDG Closed	:	July 29, 1994
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W0154
Data Deliverable	:	Summary

I. Introduction

On July 29, 1994, one (1) water sample was received by the Quanterra Environmental Services Richland Laboratory (QTESRL) for radiochemical analysis. Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Bechtel Hanford Inc. (BHI) specific IDs:

QTESRL ID	BHI ID	Matrix	Date of Receipt
40757701	B09TD8	Water	07/29/94

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

Liquid Scintillation Counting	**Gamma Spectroscopy** Gamma Scan by method ITAS-RD-3219 **Liquid Scintillation Counting** Technetium-99 by method ITAS-IT-RS-0001

III. Quality Control

The analytical results for each analysis performed under SDG W0154 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate. Any exceptions have been noted in the "Comments" section.

Quality control sample results are reported in the same units as sample results.

IV. Comments

Results from the initial radioactivity screening of these samples classified them as Category I.

Liquid Scintillation Counting

Technetium-99 by method ITAS-IT-RS-0001
The matrix spike, LCS, batch blank, sample and sample duplicate (duplicate of sample B09TD8) results are within contractual requirements.

Gamma Spectroscopy

Gamma Scan by method ITAS-RD-3219
The LCS is within contractual limits. The batch blank, sample and sample duplicate (duplicate of sample B09TD8) MDA results are less than the RDL for some isotopes. However, on others the RDL is slightly higher due to insufficient sample volume for routine analysis. The sample and sample duplicate are within the three sigma control limit for all isotopes.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Suzanne Gaines
Project Manager

Quanterra
Environmental Services

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0154
LAB SAMPLE ID:	40757701	**MATRIX:**	WATER
CLIENT ID:	B09TD8	**DATE RECEIVED:**	7/29/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
CO-58	-3.89E+00	8.34E+00	8.35E+00	1.41E+01	pCi/L	N/A	RD3219
CO-60	1.92E+01	1.37E+01	1.38E+01	3.00E+01	pCi/L	N/A	RD3219
CS-137DA	7.80E+00	6.55E+00	6.60E+00	1.49E+01	pCi/L	N/A	RD3219
EU-152	8.48E+00	1.83E+01	1.83E+01	3.43E+01	pCi/L	N/A	RD3219
EU-154	1.78E+01	2.66E+01	2.67E+01	5.79E+01	pCi/L	N/A	RD3219
EU-155	-1.36E+01	1.35E+01	1.35E+01	2.12E+01	pCi/L	N/A	RD3219
FE-59	-4.01E+00	2.05E+01	2.05E+01	3.57E+01	pCi/L	N/A	RD3219
TC-99	1.38E+03	9.10E+00	1.55E+02	3.60E+00	pCi/L	95.10%	ITAS-IT-RS-0001

Number of Results: 8

INTERNATIONAL TECHNOLOGY CORPORATION

LOG #: RD-94-_____ page 1 of 2

ITAS-Richland
LABORATORY NONCONFORMANCE MEMO (NCM)

0723

PROJECT ID (Name/Number): BHC

NCM INITIATED BY (Name/Date): Joel T Kampoman 8-12-94

PARAMETER(S): Gamma

SAMPLE NUMBER(S) AFFECTED: All samples on WC# 407577 + Associated blank WQ154

MATRIX: Water

AREA: ☐ SHIP/REC ☒ RADIOCHEM ☐ COUNTING ☐ BIOASSAY ☐ DATA VERIF ☐ REPORTING ☐ OTHER:

NONCONFORMANCE [check appropriate item(s)]:

1. ☒ Not enough sample received for proper analysis.
2. ☐ Holding time exceeded by _____ days due to:
   - 2.1 ☐ CATEGORY I: Out of Laboratory Control
     - ☐ Holding time expired at receipt.
   - 2.2 ☐ CATEGORY II: Laboratory Dependent
     - ☐ work backlog ☐ instrument failure
     - ☐ communication ☐ other (see #10)
   - 2.3 ☐ CATEGORY III: Laboratory Reruns
     - 2.3.1 ☐ *QA/QC:*
       - ☐ surrogates ☐ internal standards
       - ☐ spike recoveries ☐ blank contamination
     - 2.3.2 ☐ *CONFIRMATION:*
       - ☐ second column ☐ contamination check
       - ☐ other (see #10)
     - 2.3.3 ☐ *DILUTION:*
       - ☐ over calibration ☐ under calibration
       - ☐ other (see #10)
     - 2.3.4 ☐ *OTHER: (see #10)*
3. ☐ Sample lost during extraction/analysis; no re-prep or re-analysis possible.
4. ☐ QC data reported to client outside of:
   - ☐ method limits ☐ internal limits
   - ☐ QAPP limits ☐ contract limits
   - ☐ regulatory limits ☐ blank criteria
5. ☐ Incorrect procedure(s) used. (See #10)
6. ☐ Invalid instrument calibration. (See #10)
7. ☐ Incorrect/incomplete data reported to client. (See #10)
8. ☒ Reported detection limit(s) higher than:
   - ☐ method limits ☐ QAPP limits
   - ☒ contract limits ☐ other (see #10)

   Due to:
   - ☐ sample matrix ☒ insufficient sample
   - ☐ instrumentation ☐ other (see #10)
9. ☐ **Other (specify):**
10. ☐ **Comments/Explanation:**

NOTIFICATION [check appropriate item(s)]:

1. ☐ Client notified by (name and date):_____
   - ☐ in writing ☐ by FAX
   - ☐ by phone ☐ Other (explain)
2. ☐ Client's name _____ and response:
   - ☐ process "as is" ☐ resample
   - ☐ on hold til ____ ☐ Other (explain)

PROJECT MANAGER (signature & date): Tim Scott 5/15/94

FURTHER ACTION REQUIRED, SEE PAGE 2 OF 2

IT CORPORATION

CORRECTIVE ACTION

☑ ROOT CAUSE: INITIALS/DATE JTK 8-12-94

insufficient sample received from client

☑ CORRECTIVE ACTION: INITIALS/DATE JTK 8-12-94

Data accepted -

☐ RESPONSIBILITY FOR PERFORMING CORRECTIVE ACTION ASSIGNED TO:

☐ ACTIONS TO PREVENT RECURRENCE: INITIALS/DATE

FIRST LEVEL SUPERVISOR: [signature] DATE: 8-12-94

RESPONSIBLE MANAGER: [signature] DATE: 8/15/94

QC REVIEW

☐ NONCONFORMANCE ☑ DEFICIENCY ☐ RERUN

☐ FURTHER ACTION REQUIRED:

ASSIGNED TO:

QC COORDINATOR: [signature] DATE: 8/17/94

CORRECTIVE ACTION VERIFICATION

☑ VERIFIED ☐ CANNOT VERIFY (specify reason)

REASON:

NCM CLOSURE

QC COORDINATOR: [signature] DATE: 8/17/94

SIGNED ORIGINAL MUST BE RETAINED IN FILE: ☐ QUALITY/OPERATIONS FILE ☑ PROJECT FILE

2

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [X] Priority [ ] Normal

Collector: L.E. ROGERS	Company Contact: L.E. ROGERS	Telephone No.: 376-7690
Project Designation: 200-BP-5 (CHARACTER TO SUPPORT PUMP & TREAT)	Sampling Location: 200-BP-5	SAF No.: B94-008
Ice Chest No.: GWS-015	Field Logbook No.: EFL-1143	Method of Shipment: GOVERNMENT VEHICLE
Shipped To: QUANTERRA	Offsite Property No.	Bill of Lading/Air Bill No.

Possible Sample Hazards/Remarks	Preservative	NaOH	HCl		none												
	Type of Container	P	P/G		G												
	No. of Container(s)	1	2		1												
Special Handling and/or Storage: COOL TO 4C	Volume	1000ml	1000ml		40 ml												
SAMPLE ANALYSIS: 40757601		Cyanide	Co-60 Tc-99 40757701		Activity scan												

Sample No.	Matrix*	Date Sampled	Time Sampled															
B9TTD8 A	W	7-28-94	0853															
	W																	
	W																	
	W																	
	W																	
	W																	

0016

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: [signature]	Date/Time: 7-28-94 1400	Received By: CH2M HILL [signature]	Date/Time: 7/28/94 1400
Relinquished By: [signature]	Date/Time: 7/29/94 1115	Received By: [signature]	Date/Time: 7-29-94 1115
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS: SDG W01574

Matrix*
- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solids
- DL = Drum Liquids
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetation
- X = Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: _____ DATE INITIATED: 7-29-94

INITIATED BY: JHeidelberg

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 7-29 1115

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
B09TD8	na	?
		o

Samples were received with the following deficiencies:

- ☐ 1. Not enough sample received for proper analysis.
- ☐ 2. Sample received without proper preservative.
- ☐ 3. No sample received in container.
- ☐ 4. Sample received without a RFA/COC form.
- ☐ 5. No sample ID on container.
- ☐ 6. Sample received broken or leaking.
- ☐ 7. Holding time exceeded at receipt.
- ☐ 8. Custody tape broken.
- ☐ 9. COC not relinquished by client.
- ☒ 10. Sample information on container does not match sample information on the paper work (Explain below).
- ☐ 11. All shipping containers (coolers) on waybill not received with shipment.
  - ☐ RFA/COC received
  - ☐ RFA/COC not received
- ☐ 12. Other (Explain below).

NOTES: COC analysis are not marked. Logged for Cyanide, Y, TC. JH 7/29/94 no screening info from WHC.

SUPERVISOR REVIEW: Jani Heidelberg

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

FORM NO. LS-023, 3/92, Rev. 0

0017

072994A.WQ1

TENNELEC #1 SCREENING CALCULATION SPREADSHEET

all Cat I (PS) 7/29/94

Customer Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	7-29-94		7-29		7-29	10	11	275	240

Customer ID	pH	Residue	Vol.	Sample	SMPLE CNT DATA			Net Sample		DPM / Aliqout		uCi per Sample		2 Sigma Error uCi per Sample		pCi/(Gm or L)		Category 1	Aliquot to Cat 1 Gm or L	
WHC/LIQ	<2 Rcvd/Relq	Wght mG	Anal. mG mL	Size Gm L	Hldr Num	Total Alpha	Counts Beta	Counts/Minute Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Yes/No	Alpha	Beta
B0CJG3		2.6	10	2.5	1	4	24	0.35	1.25	1.39E+00	2.45E+00	1.6E-04	2.8E-04	1.9E-07	1.8E-07	6.2E+01	1.1E+02	Yes	1.6E+02	9.1E+02
B0CJG1		2.2	10	2.5	2	4	21	0.35	0.95	1.39E+00	1.80E+00	1.6E-04	2.0E-04	1.8E-07	1.6E-07	6.2E+01	8.1E+01	Yes	1.6E+02	1.2E+03
B0CJH5		1.9	10	2.5	3	4	23	0.35	1.15	1.37E+00	2.23E+00	1.5E-04	2.5E-04	1.8E-07	2.8E-07	6.2E+01	1.0E+02	Yes	1.6E+02	1.0E+03
B0BN86		22.0	10	1.0	4	63	1086	6.25	107.45	2.95E+01	2.34E+02	1.3E-03	1.1E-02	5.0E-07	5.5E-06	1.3E+03	1.1E+04	Yes	7.5E+00	9.5E+00
B0CJJ1		2.2	10	2.5	5	1	18	0.05	0.65	1.96E-01	1.36E+00	2.2E-05	1.5E-04	6.8E-08	8.6E-07	8.8E+00	6.1E+01	Yes	1.1E+03	1.6E+03
B0CJF9		2.9	10	2.5	6	4	17	0.35	0.55	1.42E+00	9.49E-01	1.6E-04	1.1E-04	1.9E-07	8.1E-08	6.4E+01	4.3E+01	Yes	1.6E+02	2.3E+03
01 B09TD8		20.3	10	1.0	7	6	101	0.55	8.95	2.57E+00	1.94E+01	1.2E-04	8.7E-04	1.2E-07	1.4E-06	1.2E+02	8.7E+02	Yes	8.6E+01	1.1E+02
B0BN87		19.9	10	1.0	8	0	8	-0.05	-0.35	-2.3E-01	-7.3E-01	-1.0E-05	-3.3E-05	-3.3E-08	-1.2E-07	-1.0E+01	-3.3E+01	Yes	-9.8E+02	-3.0E+03
TOTAL uCi												2.1E-03	1.2E-02							

SDG W0154

407-576 Chem.

407-577 Rad.

OFFICE OF SAMPLE MANAGEMENT

RECORD OF DISPOSITION

ROD-B94-006
Record of Disposition No.

DATE: 08/01/94	LABORATORY: Quanterra
PROJECT TITLE/NO.: 200-BP-5/SAF B94-008	NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS:

B09TD8

DESCRIPTION OF EVENT:

The Chain of Custody/Sample Analysis Request form was not completely filled out. The analyses requested were not indicated. The Chain of Custody was broken.

DISPOSITION OF SAMPLES:

With concurrence from D. B. Erb, the project engineer, proceed with analyses indicated on individual sample bottles.

APPROVAL SIGNATURES:

R. C. Smith/ R C Smith — 8/1/94
OSM Project Coordinator (Print/Sign Name) — Date

D. B. Erb/ David B. Erb — 8/2/94
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

ORIGINAL → RICHLAND

xc: VAN
SHAI
TAMI
JIM
WADE

QUANTERRA/WHC ISSUE RESOLUTION FORM

SAF No. **B94-008** Project **200-BP-5 (Character to Support Pump & Treat)**
Date **8-05-94**

Sample No.(s) **B09TD7, B09TD8 & B09TD9**

Submitted By: Jim Harvey	Submitted To: Jeff Lerch
Phone No. 615-690-3211 x5611	Phone No. 509-372-2596
Fax No. 615-693-2348	Fax No. 509-372-2106

ISSUE	PROPOSED RESOLUTION
1) BHI submitted the following sample volume to Quanterra: • One 1000ml container for Cyanide • Two 1000ml containers to be used for both the Co-60 and Tc-99 analyses The volume of sample submitted is sufficient for the requested analyses, however, it is not sufficient to run the contractually required QC (Duplicates and Matrix Spikes).	1) Quanterra will analyze the submitted sample volumes as follows: **Cyanide Analysis:** • Use ≈ 500 mls for the Sample. • Use ≈ 250 mls for a sample Duplicate. • Use ≈ 250 mls for the Matrix Spike. **Gamma Spectroscopy (Co-60) Analysis:** • Use ≈ 500 mls for the Sample. • Use ≈ 500 mls for a sample Duplicate. **Technetium-99 Analysis:** • Use one-third (≈ 333mls) of the sample volume for the Sample. • Use one-third (≈ 333mls) of the sample volume for a sample Duplicate. • Use one-third (≈ 333mls) of the sample volume for the Matrix Spike. ***Detection Levels will be increased proportionally for the reduced analyzed volumes.***

XC: Jodie Carnes (File)
Tami Heidelberg
Wade Price / Sheree Schneider
Suzi Gaines
Van Pettey
Bill MacKellar

0020

OFFICE OF SAMPLE MANAGEMENT

RECORD OF DISPOSITION

ROD-B94-012
Record of Disposition No.

DATE: 08/05/94

LABORATORY: Quanterra

PROJECT TITLE/NO.: 200-BP-5 (Charact. to Support Pump and Treat)/B94-008

NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS:

B09TD7, B09TD8, B09TD9

DESCRIPTION OF EVENT:

Sample volumes submitted are insufficient to run contractually required QC (duplicates and matrix spikes).

DISPOSITION OF SAMPLES:

Analyze reduced sample volumes as outlined on attached issue resolution form. Detection limits will be increased proportionally for the reduced analyzed volumes.

APPROVAL SIGNATURES:

R. C. Smith/ RC Smith — 8/5/94
OSM Project Coordinator (Print/Sign Name) — Date

D. B. Erb/ David B. Erb — 8/8/94
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

ORIGINAL → RICHLAND

XC: VAN WADE
JIM TAMI
SUZI

0021

8-13-94 S1-1 B4Y008

*** GAMMA ***

CHAIN OF CUSTODY BATCH ANALYSIS RECORD 1 AUG 1994
Page 1

CUSTOMER: BHC SAMPLE DELIVERY GROUP W0154

MATRIX : WATER BATCH NUMBER 7-577

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	L0757718 L0757715				
1)	40757701 F0757701		BHC	B09TD8	

ACTIONS (Initial & Date)

1) INITIATED RB 8/1/94

2) PREP LAB RECEIVED [illegible] 8/3/94

3) SAMPLE REMAINDER STORED [illegible] 8/3/94

4) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB 8-8-94 AD

6) DATA REVIEWED AND ANALYTICAL PREP STORED [illegible] 8-12-94

Priority

8-13-94 B94-008

*** TC-99 ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

1-Aug-1994
Page 1

CUSTOMER: BHC

SAMPLE DELIVERY GROUP W0154

MATRIX : WATER

BATCH NUMBER 7-577

ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
L075771N	L075771B	W0757701		
L075772N	L075771M	E0757701		
1) 40757701		BHC	B09TD8	

ACTIONS (Initial & Date)

1) INITIATED RB 8/1/94

2) PREP LAB RECEIVED 8/05/94 mm

3) SAMPLE REMAINDER STORED N/A

4) SEPARATION LAB RECEIVED 8/05/94 mm

5) COUNTING/MEASUREMENT LAB OP 8/10/94

6) DATA REVIEWED AND ANALYTICAL PREP STORED SK 9/15/94

Priority

W0757701 - EQN 211 - 100.32 ± 1.2424 DPM

- L075771M EQN 212 100.29 ± 1.242 DPM

Quanterra
Environmental Services

CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

September 2, 1994

Attention: J. A. Lerch

Project number	:	550.04
Date Received by Lab	:	July 29, 1994
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W0154
Data Deliverable	:	Summary

I. Introduction

On August 1, 1994, one (1) water sample was received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. Upon receipt, the sample was given the following laboratory ID number to correspond with the specific client ID:

St Louis ID	WHC ID	Richland ID	Matrix	Date of Receipt
5699-001	BO9TD8	40757601	Water	07/29/94

II. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits.

Analyses requested: Cyanide by EPA method 9010.

III. Quality Control

A Laboratory Control Sample and Method Blank were analyzed with each preparation batch. A Matrix Spike and Duplicate analysis was performed per the protocol for this analyte.

IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

QCBLK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike

V. Comments

The temperature of the sample cooler, upon receipt, was 1° C which is below the recommended temperature of 4° ± 2° C. No analyses was checked off on the client chain of custody, however, only one anlyses was listed.

The pH of the sample, upon receipt, was 9.

There was insufficient sample volume for this analysis and QC to be run at full volume. Therefore the Duplicate and Matrix Spike were analyzed using half the volume. However, since the sample values are high, the increased detection limit does not affect the analysis results.

The Relative Percent Difference (RPD) was outside of the recommended ± 20%.

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Wade H. Price
Project Manager
z:\annelars\hanw0154.nar

OFFICE OF SAMPLE MANAGEMENT

RECORD OF DISPOSITION

ROD-B94-006
Record of Disposition No.

DATE: 08/01/94 | LABORATORY: Quanterra

PROJECT TITLE/NO.: 200-BP-5/SAF B94-008 | NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS:

B09TD8

DESCRIPTION OF EVENT:

The Chain of Custody/Sample Analysis Request form was not completely filled out. The analyses requested were not indicated. The Chain of Custody was broken.

DISPOSITION OF SAMPLES:

With concurrence from D. B. Erb, the project engineer, proceed with analyses indicated on individual sample bottles.

APPROVAL SIGNATURES:

R. C. Smith/ RClayton Smith — 8/1/94
OSM Project Coordinator (Print/Sign Name) — Date

D. B. Erb/ David B. Erb — 8/2/94
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

ORIGINAL → RICHLAND

xc: VAN
SHAI
TAMI
JIM
WADE

000004A

OFFICE OF SAMPLE MANAGEMENT

RECORD OF DISPOSITION

ROD-B94-012
Record of Disposition No.

DATE: 08/05/94

LABORATORY: Quanterra

PROJECT TITLE/NO.: 200-BP-5 (Charact. to Support Pump and Treat)/B94-008

NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS:

B09TD7, B09TD8, B09TD9

DESCRIPTION OF EVENT:

Sample volumes submitted are insufficient to run contractually required QC (duplicates and matrix spikes).

DISPOSITION OF SAMPLES:

Analyze reduced sample volumes as outlined on attached issue resolution form. Detection limits will be increased proportionally for the reduced analyzed volumes.

APPROVAL SIGNATURES:

R. C. Smith/ RC Smith — 8/5/94
OSM Project Coordinator (Print/Sign Name) — Date

D. B. Erb/ David B. Erb — 8/8/94
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

ORIGINAL → RICHLAND

CC: VAN WADE
JIM TAMI
SUZI

000004B

Quanterra August 03, 1994 07:53 am

Account: 10722 Project: 550.04 Quanterra-Richland QAS No. 661 Rev. 0

Master Sample Login: 5699

Project Manager: W. Price

Draft: Final: Entered and Reviewed by: PM Review:

Sample Header Template:

Sample No. / Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
Comments							
# Container Type	Analysis	Class	Preservative	Anal. Due Date	Hold Date	Site	(Container Numbers:% Filled)
Data:							
5699-001 B09TD8	Water	27-JUL-94 08:53	29-JUL-94 11:15	12-AUG-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40757601							
1 PN - Plastic-1L	CN/9010/Q4	S	NAOH	10-AUG-94	10-AUG-94	S5A	(89391:100)
5699-001DUP B09TD8	Water	27-JUL-94 08:53	29-JUL-94 11:15	12-AUG-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40757601							
1 PN - Plastic-1L	CN/9010/Q4	S	NAOH	10-AUG-94	10-AUG-94	S5A	(89391:100)
5699-001MS B09TD8	Water	27-JUL-94 08:53	29-JUL-94 11:15	12-AUG-94	FED-EX	1	Screening not Required
QUANTERRA RICHLAND I.D. 40757601							
1 PN - Plastic-1L	CN/9010/Q4	S	NAOH	10-AUG-94	10-AUG-94	S5A	(89391:100)

3*=Sample has not been rad screened.

000005

Temp 3°C CLP-805

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 481751
Page 1 of 1

Project Name/No.[1] SAF B94-008
Sample Team Members[2]
Profit Center No.[3]
Project Manager[4] VAN PETTEY
Purchase Order No.[6]
Required Report Date[11] 8-13-94

Samples Shipment Date[7] 7-29-94
Lab Destination[8] ST Louis
Lab Contact[9]
Project Contact/Phone[12]
Carrier/Waybill No.[13]

Bill to:[5] Quanterra Richland
Report to:[10] Quanterra Richland

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Preservative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
40757601A	B09TD8/water	SEE COC Pdf 7/27/94 8:53		1L	Cool to 4° NaOH	Cyanide (Taken off bottle See SDF.)	2.5 100 pH-9 FOR LAB USE ONLY	
	JH 7/29/94							
							FOR LAB USE ONLY	

Special Instructions:[23] As per WHC Contract

Possible Hazard Identification:[24] Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal:[25] Return to Client ☒ Disposal by Lab ☐ Archive ☐

Turnaround Time Required:[26] Normal ☐ Rush ☒ 15 day TAT

QC Level:[27] I ☐ II ☐ III ☐ Project Specific (specify): SDG W0154

1. Relinquished by[28] (Signature/Affiliation) Rudelberg Quanterra Date: 7-29-94 Time: 16:00	1. Received by[28] (Signature/Affiliation) Quanterra - St. Louis Date: 30 JUL 1994 Time: 10:15
2. Relinquished by (Signature/Affiliation) Date: Time:	2. Received by (Signature/Affiliation) Date: Time:
3. Relinquished by (Signature/Affiliation) Date: Time:	3. Received by (Signature/Affiliation) Date: Time:

Comments:[29] 000006 Priority

INTERNATIONAL TECHNOLOGY CORPORATION

C.U.R. and C.O.C.

COPIED TO: W. Price
DATE: 30 Jul 1994
TIME: 11:30
BY: J. Daniels

Work Order No.: 5699

Condition Upon Receipt Variance Report
ITAS - St. Louis Laboratory

Client: QUANTERRA - RICHLAND
Date: 30 Jul 1994
Project No: 550.04
Initiated by: Jeff Daniels
Analysis Requested: Refer to RFA/COC
RFA/COC Numbers: 481751
Client Sample Numbers Affected: Entire Login

Condition/Variance (Check all that apply): Circle Number to Denote that Item was Evaluated. "NA" = "Not Applicable".

1. NA Not enough sample received for proper analysis. Received approximately: _____
2. ☐ Sample received broken/leaking.
3. ☒ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C. Record temperature: 3°C
   - ☒ pH pH for CN @ 9
   - ☐ other: _____
4. ☐ Sample received in improper container.
5. ☐ Sample received without proper paperwork. Explain: _____
6. ☐ Paperwork received without sample.
7. ☐ No sample ID on sample container.
8. ☐ Custody tape disturbed/broken/missing.
9. NA Sample split performed by lab.
10. NA Volatile sample received with approximately _____ mm headspace.
11. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
12. ☐ All coolers on airbill not received with shipment.
13. ☐ Other (explain below): Shipping containers not rad surveyed.

Notes: _____

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____

☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". Comments: _____

☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Reviewer: (or designate) Jeffrey J. Daniels Date: 30 Jul 1994

Project Management Reviewer: _____ Date: _____

000007

S05

2

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: [X] Priority [ ] Normal

Collector: L.E. ROGERS	Company Contact: L.E. ROGERS	Telephone No.: 376-7690
Project Designation: 200-BP-5 (CHARACTER TO SUPPORT PUMP & TREAT)	Sampling Location: 200-BP-5	SAF No.: 894-008
Ice Chest No.: GWS-015	Field Logbook No.: EFL-1143	Method of Shipment: GOVERNMENT VEHICLE
Shipped To: QUANTERRA	Offsite Property No.	Bill of Lading/Air Bill No.

Possible Sample Hazards/Remarks	Preservative	NaOH	HCl		none												
	Type of Container	P	P/G		G												
	No. of Container(s)	1	2		1												
Special Handling and/or Storage: COOL TO 4C	Volume	1000ml	1000ml		40 ml												
SAMPLE ANALYSIS: 407571601		Cyanide	Co-60 Tc-99 407571701		Activity scan												

Sample No.	Matrix*	Date Sampled	Time Sampled
B0YTD8 A	W	7-28-94	0855
	W		
	W		
	W		
	W		
	W		

CHAIN OF POSSESSION

Sign/Print Names			
Relinquished By: [illegible]	Date/Time: 7/28/94 1400	Received By: CH2M HILL A.G. Simpson	Date/Time: 7/28/94 1400
Relinquished By: A.G. Simpson	Date/Time: 7/29/94 1115	Received By: [illegible]	Date/Time: 7-29-94 1115
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS: SDG W01754

Matrix*
- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solids
- DL = Drum Liquids
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetation
- X = Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original - Sample Yellow - Sampler

BC-6000-828 (12/92)

800008

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER:_____ DATE INITIATED: 7-29-94

INITIATED BY: Heidelberg

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 7-29 1115

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
B09TD8	na	?
		0

Samples were received with the following deficiencies:

- ☐ 1. Not enough sample received for proper analysis.
- ☐ 2. Sample received without proper preservative.
- ☐ 3. No sample received in container.
- ☐ 4. Sample received without a RFA/COC form.
- ☐ 5. No sample ID on container.
- ☐ 6. Sample received broken or leaking.
- ☐ 7. Holding time exceeded at receipt.
- ☐ 8. Custody tape broken.
- ☐ 9. COC not relinquished by client.
- ☒ 10. Sample information on container does not match sample information on the paper work (Explain below).
- ☐ 11. All shipping containers (coolers) on waybill not received with shipment.
  - ☐ RFA/COC received
  - ☐ RFA/COC not received
- ☐ 12. Other (Explain below).

NOTES: COC analysis are not marked. Logged for Cyanide, Y, TC. 1H 7/29/94 NO Screen result from WHC.

SUPERVISOR REVIEW: Toni Heidelberg

PROJECT MANAGER REVIEW:_____

TELEPHONED TO:_____ ON_____ BY_____

TELEFAXED TO:_____ ON_____ BY_____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

FORM NO. LS-023, 3/92, Rev. 0

072994A.WQ1

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

all Cat 1 (PH) 11/27/94

Customer Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	7-29-94		7-29		7-29	10	11	275	240

Customer ID	pH	Residue	Vol.	Sample	SMPLE CNT DATA			Net Sample		DPM / Aliqout		uCi per Sample		2 Sigma Error uCi per Sample		pCi/(Gm or L)		Category 1	Aliquot to Cat 1 Gm or L	
WHC/LIQ	<2 Rcvd/Reiq	Wght mG	Anal. mG mL	Size Gm L	Hldr Num.	Total Alpha	Counts Beta	Counts/Minute Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Yes/No	Alpha	Beta
B0CJG3		2.6	10	2.5	1	4	24	0.35	1.25	1.39E+00	2.45E+00	1.6E-04	2.8E-04	1.9E-07	1.8E-07	6.2E+01	1.1E+02	Yes	1.6E+02	9.1E+02
B0CJG1		2.2	10	2.5	2	4	21	0.35	0.95	1.39E+00	1.80E+00	1.6E-04	2.0E-04	1.8E-07	1.6E-07	6.2E+01	8.1E+01	Yes	1.6E+02	1.2E+03
B0CJH5		1.9	10	2.5	3	4	23	0.35	1.15	1.37E+00	2.23E+00	1.5E-04	2.5E-04	1.8E-07	2.8E-07	6.2E+01	1.0E+02	Yes	1.6E+02	1.0E+03
B0BN86		22.0	10	1.0	4	63	1086	6.25	107.45	2.95E+01	2.34E+02	1.3E-03	1.1E-02	5.0E-07	5.5E-06	1.3E+03	1.1E+04	Yes	7.5E+00	9.5E+00
B0CJJ1		2.2	10	2.5	5	1	18	0.05	0.65	1.96E-01	1.36E+00	2.2E-05	1.5E-04	6.8E-08	8.6E-07	8.8E+00	6.1E+01	Yes	1.1E+03	1.6E+03
B0CJF9		2.9	10	2.5	6	4	17	0.35	0.55	1.42E+00	9.49E-01	1.6E-04	1.1E-04	1.9E-07	8.1E-08	6.4E+01	4.3E+01	Yes	1.6E+02	2.3E+03
B09TD8		20.3	10	1.0	7	6	101	0.55	8.95	2.57E+00	1.94E+01	1.2E-04	8.7E-04	1.2E-07	1.4E-06	1.2E+02	8.7E+02	Yes	8.6E+01	1.1E+02
B0BN87		19.9	10	1.0	8	0	8	-0.05	-0.35	-2.3E-01	-7.3E-01	-1.0E-05	-3.3E-05	-3.3E-08	-1.2E-07	-1.0E+01	-3.3E+01	Yes	-9.8E+02	-3.0E+03
TOTAL uCi												2.1E-03	1.2E-02							

Bechtel Hanford Company
P.O. Box 1970
Richland, WA 99352

Project: 550.04

Category: Cyanide
Method: EPA 9010
Matrix: Water

Sample Date : 07/27/94
Receipt Date : 07/29/94
Report Date : 08/11/94

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Di
B09TD8	5699-001	Cyanide	57-12-5	QCBLK42345-1	08/03/94	08/03/94	44.8	UG/L		5.0	
B09TD8	5699-001DUP	Cyanide	57-12-5	QCBLK42345-1	08/03/94	08/03/94	134	UG/L		5.0	
B09TD8	5699-001MS	Cyanide	57-12-5	QCBLK42345-1	08/03/94	08/03/94	115	%REC			
NA	QCBLK42345-1	Cyanide	57-12-5	QCBLK42345-1	08/03/94	08/03/94	5.0	UG/L	U	5.0	
NA	QCLCS42345-1	Cyanide	57-12-5	QCBLK42345-1	08/03/94	08/03/94	95	%REC			

[redacted]
C00012